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PHYSICAL THERAPY PROTOCOL

Hip Labral Reconstruction Rehabilitation

Iliotibial Band (ITB) Allograft Reconstruction

FOR THE PHYSICAL THERAPIST

Overview and Goals

This protocol governs rehabilitation following arthroscopic hip labral reconstruction using iliotibial band (ITB) allograft. Labral reconstruction is performed when the native labrum is irreparable — typically due to severe degeneration, ossification, hypoplasia, or prior failed repair. The graft recreates the labral seal and restores the suction effect that distributes load across the joint.[1,2,3]

The protocol is intentionally more conservative than that for primary labral repair through the early phases. The graft requires biological incorporation before it can tolerate the loads a healed native labrum tolerates, so weight-bearing and ROM restrictions are extended to protect graft fixation while incorporation occurs.[1,3,5] Despite the more conservative early protocol, published comparative outcome studies show that labral reconstruction achieves outcomes comparable to labral repair at minimum 2-year and 5-year follow-up.[6,7,8]

Two principles guide the rehabilitation. First, protect graft incorporation through the first 6 weeks. Second, restore normal motion and gait early within those constraints — extended immobilization is not protective and contributes to capsular adhesions, hip flexor compensation, and prolonged recovery.[3,12] Stationary cycling without resistance is initiated on postoperative day 1 to support these goals.

Progression between phases is criterion-based. Time ranges represent typical windows, not gates. Hip strength and ROM remain measurably below age-matched controls at six months postoperatively in many patients[15] — continued progression beyond formal PT discharge is expected.

THIS PROTOCOL IS FOR LABRAL RECONSTRUCTION ONLY

Designed for labral reconstruction with ITB allograft, with or without concomitant femoroplasty or acetabuloplasty. If the procedure was a **primary labral repair** (suturing of native tissue), use the Hip Arthroscopy protocol instead — it has earlier weight-bearing progression and shorter ROM restrictions appropriate for primary repair. If capsular plication or microfracture was performed concomitantly, see the corresponding modification section below before initiating rehabilitation.

Rehabilitation Phases

PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
PHASE 1 Weeks 0–6 *Graft protection & early motion*	• Foot-flat weight bearing (FFWB), 20 lbs, with crutches for 6 weeks — protects the graft during early biological incorporation.[1,3,4,9,10] • Progress to full weight	None.[9,11]	**Pain-free passive ROM within these limits for the first 6 weeks:** • Flexion 0–90° • Extension 0° (no hyperextension) • Abduction 30° • External rotation: neutral only for the first 2 weeks — the capsule is closed in every case, and	**Pain & effusion control:** • Cryotherapy, scar massage once incisions healed **Stationary bike (no resistance):** • Initiated POD #1 as tolerated — critical element of early rehab; supports capsular healing and graft nutrition through controlled motion. **ROM:** • Passive ROM within above limits, gentle circumduction, prone-lying soft-tissue mobilization **Strengthening (isometrics only):**	• Pain controlled at rest and with prescribed exercises • Effusion / soft-tissue swelling minimal • Pain-free ROM within phase limits • Quad and gluteal activation symmetric on palpation

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PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
	bearing over weeks 6–8.		the foot should not be allowed to fall outward at rest. From week 3, progress to 30° at 90° flexion as tolerated. • Internal rotation neutral at 90° flexion From week 6: progress toward full ROM as tolerated. • Avoid the impingement position (combined deep flexion + adduction + internal rotation) throughout Phase 1.	• Quadriceps sets, gluteal sets • Hamstring digs with knee support • Ankle pumps, plantarflexion / dorsiflexion **Avoid:** • Active hip flexion / SLR — defers hip flexor tendinopathy[3,12] • Joint or capsular mobilization through Phase 2 • Resistance on the bike • Aggressive stretching past listed ROM limits • Loaded ROM exercises until graft incorporation is established	• Minimum 6 weeks elapsed
PHASE 2 Weeks 6–12 *Gait restoration & controlled mobility*	• Progress from FFWB → partial → full weight bearing over weeks 6–8 as gait quality and pain allow.[1,3,12] • Wean from crutches as patient demonstrates symmetric, pain-free gait.	• None.	• Progressive ROM restoration toward full pain-free range in all planes. • Continue to avoid loaded extremes and the impingement position through Phase 2.	**Gait training:** • Restore normal gait pattern; address antalgic compensation, hip-hike, or trunk lean **Strengthening progression:** • Gluteus medius (isotonic): clamshells, side-lying abduction, monster walks (light band) • Gluteus maximus: bridges, prone hip extension • External rotators: side-lying clams, sustained isometric rotation **Core & lumbo-pelvic stability:** • Bird dog, plank progressions, weight shifting and double-leg balance • Dead bug from week 8, once active hip flexion is permitted • Step over small obstacle on non-operative leg, emphasizing operative-side hip extension **Cardio:** • Stationary bike — add light resistance at weeks 8–10. Pool walking once incisions fully healed. **Manual therapy & aquatics:** • Emphasized in this phase per published consensus — soft-tissue work and aquatic exercise from the start of the phase; joint and capsular mobilization only after Phase 2 is complete.[1] • SLR may begin at week 8, within this phase — progress active hip flexion gradually and reduce volume if anterior hip pain develops. **Continue to avoid:** • Active hip flexion / SLR before week 8 • Joint or capsular mobilization • End-range stretching • Loaded deep flexion (squat past 90°)	• Normalized gait without assistive device • Full or near-full pain-free ROM • Single-leg stance ≥ 20 sec without Trendelenburg sign • Tolerates light resistance training without flare

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PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
PHASE 3 Weeks 12–20 *Strengthening & neuromuscular control*	• Full weight bearing.	• None.	• Full, pain-free ROM in all planes.	• Continue the SLR progression begun at week 8 — progress active hip flexion gradually with attention to flexor tendinopathy, and reduce volume if anterior hip pain develops. **Progressive resistance (all planes):** • Hip abduction, adduction, extension — progressive band / cable / weight • External and internal rotators • Quadriceps and hamstring strengthening • Squat progression: bodyweight → goblet → loaded; partial → full depth as tolerated • Step-ups, step-downs (forward and lateral) • Lunges in multiple planes • Single-leg squat progression **Neuromuscular & proprioception:** • Single-leg balance (foam, BOSU), perturbation training, side steps with band, slide board **Cardio:** • Stationary bike (progressive resistance), elliptical, swimming, pool running **Sport-specific:** • Lateral movements and single-leg activities introduced late in phase.[3]	• Hip abductor LSI ≥ 70% by hand-held dynamometry (intermediate gate; the same method is used for clearance) • Quadriceps LSI ≥ 70% by the same method • Pain-free single-leg squat with controlled mechanics • No anterior hip pain with active hip flexion • Tolerates running gait simulation without flare
PHASE 4 Months 5–9+ *Return to running, sport & activity*	• Full weight bearing.	• None.	• Full, pain-free ROM.	• Running progression when Phase 3 criteria met (typically months 5–6; reconstruction often slower than the literature median of 12 weeks):[9] • Treadmill walk-run intervals → continuous running • Straight-line jogging → curved → sprinting **Plyometrics:** • Double-leg jumps in place → broad / box jumps → lateral bounds → single-leg hops in multiple planes **Agility:** • Ladder drills, carioca, sport-cord lateral drills, deceleration training **Sport:** • Sport-specific drills at progressive intensity • Continue progressive resistance training to close strength asymmetry • Establish home maintenance program beyond formal PT	*See Return-to-Sport Criteria section below.* • Clearance to sport comes no earlier than ~6 months and typically at 6.5–7.5 months — it requires at least 8–10 weeks of completed running, plyometric and agility progression after running begins.[6,13] • Recreational return typically at ~9 months as criteria are reached.

Strength testing standard. Limb-symmetry percentages are measured by hand-held dynamometry — isometric hip abduction in side-lying, or the named muscle group, best of three trials, operative ÷ contralateral × 100 — or by isokinetic testing where available; the same method is used for the phase gate and the clearance test. Where no dynamometer is available, single-leg sit-to-stand or step-down symmetry is documented as the substitute. Manual muscle testing is not sensitive enough to gate loading or return to sport. Phase gates are *intermediate* thresholds (≥ 70%); clearance thresholds are *final* (≥ 90% for the lower limb). Where symmetry cannot be reached, clearance is by

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Dr. Roth on a stable plateau — no gain over two consecutive measurements at least 6 weeks apart — together with pain-free motion and a completed sport-specific progression.

Procedure-Specific Considerations

Why the More Conservative Early Protocol

The reconstructed labrum is an allograft construct that requires biological incorporation before it can tolerate the loads a healed native labrum tolerates. Most published reconstruction protocols extend the protected weight-bearing period to ~6 weeks (vs ~2 weeks for primary repair) and extend ROM restrictions to 4–6 weeks (vs 2–3 weeks for primary repair).[1,3,9] Outcomes data show reconstruction matches repair at 2-year and 5-year follow-up[6,7,8] — but only when graft incorporation is allowed to occur.

Why No Active Hip Flexion / SLR Before Week 8

Iatrogenic hip flexor tendinopathy is one of the most common complications after hip arthroscopy. Active hip flexion in extension — particularly straight leg raise — generates significant load on the iliopsoas at its musculotendinous junction in the early healing window.[3,12] The SLR delay is extended an additional 2 weeks for reconstruction (vs week 6 for primary repair) to align with the longer protected period. Passive hip flexion ROM is safe and encouraged within the listed limits throughout. Once SLR begins at week 8, monitor for anterior hip pain — onset of flexor tendinopathy symptoms warrants reducing volume and modifying activity rather than progressing through pain.

No Joint or Capsular Mobilization Through Phase 2

Capsular tissue and the graft are healing throughout the first 12 weeks and do not benefit from manual mobilization in this window. Stationary cycling without resistance — initiated POD #1 — provides sufficient controlled motion. Soft-tissue manual therapy and aquatic exercise are emphasized from the start of Phase 2; joint and capsular mobilization waits until Phase 2 is complete.

Avoid the Impingement Position Throughout Phase 1

The combined position of deep flexion + adduction + internal rotation is the same position that produced the original impingement and loads the reconstructed labrum directly. Avoid this combined movement throughout Phase 1, even within otherwise pain-free ROM. Educate patients to avoid deep low chairs, crossed legs in flexion, and aggressive stretching in this position.

> **WHEN FORMAL PT ADDS THE MOST VALUE**
>
> A 2023 cohort study found the greatest gains occurred in the first 13 PT sessions, with continued benefit through sessions 14–27 and diminishing returns beyond session 40 (~4.5–5 months); patients discharged between 3 and 6 months had the best 2-year outcomes.[14] For labral reconstruction specifically, the first 6–8 weeks are most valuable for protected ROM progression, gait restoration, and avoiding common pitfalls. Formal supervised PT is most beneficial for:
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> - The first 6–8 weeks for protected ROM, gait restoration, and avoiding common pitfalls (SLR-related flexor tendinopathy, capsular adhesions, abnormal gait)
> - Athletes targeting return to sport-specific function
> - Patients with persistent gait deviations, anterior hip pain, or functional limitations
>
> Patients without complications often transition to a structured home program by months 4–6 with periodic check-ins.

When Multiple Procedures Were Performed Together

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When a patient had multiple procedures in the same operation — for example, labral reconstruction with capsular plication or microfracture — apply **the most conservative restriction in each dimension**: the most restrictive weight-bearing window, the most restrictive ROM limits, the longest delay before SLR or impact loading, and the longest return-to-sport timeline. The most restrictive procedure dictates the pace; less restrictive components do not average out. When uncertain which procedures were performed or how to combine restrictions, contact Dr. Roth's office before initiating rehabilitation.

Capsular Plication Modification

If capsular plication was performed during the same procedure, the modifications below apply **in addition to** the standard reconstruction protocol. Capsular plication is most often performed for microinstability, ligamentous laxity (Ehlers-Danlos and similar phenotypes), borderline dysplasia, or revision arthroscopy after iatrogenic instability. The plicated capsule must be protected from positions that strain the iliofemoral ligament — particularly combined hip extension and external rotation — during early healing.

CAPSULAR PLICATION — READ BEFORE STARTING

Weight bearing: No change from the reconstruction protocol — FFWB 20 lbs × 6 weeks already provides appropriate protection for the plicated capsule.

ROM restrictions — tighter ER limit:

- Flexion 0–90°, extension to 0°, abduction 30° — same as the reconstruction protocol.
- External rotation neutral or only slightly beyond neutral (no aggressive ER) at 90° flexion through weeks 6–8. Combined extension + ER maximally strains the plicated iliofemoral ligament and must be avoided through Phase 2.
- From week 6: progress ER gradually, monitoring for anterior or anterolateral hip pain suggesting excessive capsular strain.

SLR delay: No change — defer SLR until week 8 per the reconstruction protocol.

Running: Initiate at the later end of the reconstruction window — typically not before 5–6 months — once Phase 3 criteria are fully met.

Return to sport: Reconstruction timeline takes precedence — athletes meeting all criteria may clear at ~6 months; recreational return ~9 months. Borderline dysplasia patients may extend toward the longer end.

Patient counseling: These patients often present hip-flexible and want to return to extreme ROM. Counsel explicitly that the goal is functional range and stability — not pre-operative hypermobility — and that aggressive end-range stretching is a setback risk.

Microfracture Modification

If microfracture was performed for a chondral defect during the same procedure, the modifications below apply **in addition to** the standard protocol. The marrow clot must be protected during its initial 6-week consolidation phase, with continued maturation into fibrocartilage over 12–18 months. Premature loading before clot consolidation correlates with worse outcomes.

MICROFRACTURE — READ BEFORE STARTING

Weight bearing: No change from the reconstruction protocol — foot-flat weight bearing (FFWB), 20 lbs, × 6 weeks applies and provides appropriate protection for the maturing marrow clot.

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Continuous Passive Motion (CPM): After microfracture a CPM is recommended in addition to the stationary bike — not as a substitute for it — 8 hours daily for 6 weeks; the hours need not be consecutive. Set the machine from 0° and advance the arc to 0–70° by 2 weeks; never take the hip past 90° of flexion, and allow no adduction or internal rotation at end range. Overnight use is fine and counts toward the daily total.

Loaded ROM restrictions: Avoid loaded hip flexion past 90° and end-range loaded extension throughout Phase 2 to protect the maturing marrow clot. Passive ROM within standard limits is encouraged.

Running and impact loading: The microfracture floor is ≥ 4 months; in practice the reconstruction timeline (5–6 months) governs. Plyometrics typically begin at 5–6 months.

Return to sport: Athletes ≥ 6 months minimum; recreational return ≥ 8–9 months — aligned with the reconstruction timeline. RTS criteria otherwise unchanged.

Patient counseling: Improvement often continues through 12–18 months. “Feeling normal” at 4–6 months does not mean the cartilage has fully matured — the protocol protects long-term outcomes, not just short-term symptoms.

Return-to-Sport Criteria

Return to sport after labral reconstruction is criterion-based, with functional reproduction of sport-specific demands as the primary clearance gate. Strict limb symmetry indices are less established for hip arthroscopy than for knee surgery — hip strength and ROM remain below age-matched controls at 6 months in many patients,[15] so achievable symmetry at 6 months is typically 75–85%, and the plateau pathway in the strength-testing standard below is the usual route to clearance. Functional criteria, not isolated strength numbers, drive clearance. Across published cohorts, mean time to return to sport after labral reconstruction is approximately 6.2–6.6 months, with return-to-sport rates of 82–87% — comparable to primary labral repair.[6,13]

Domain	Criterion
Pain & symptoms	No anterior, lateral, or groin pain at rest, with sport-specific positions, or with impact loading
Range of motion	Pain-free reproduction of all sport-specific motions including end-range positions
Strength symmetry	Hip abductor and quadriceps LSI ≥ 90% by hand-held dynamometry (final threshold). Where symmetry plateaus below 90% — common after hip arthroscopy — clearance is by Dr. Roth on a stable plateau per the strength-testing standard, with functional criteria carrying greater weight than isolated strength numbers.[15]
Single-leg squat	Controlled, pain-free, symmetric depth and mechanics; no Trendelenburg sign
Running & impact	Pain-free running, jumping, and lateral agility drills
Sport-specific function	Successful completion of sport-specific drills at progressive intensity without pain or compensation
Time from surgery	No earlier than ~6 months and typically 6.5–7.5 months, requiring at least 8–10 weeks of completed running, plyometric and agility progression; recreational return typically ~9 months[6,13]

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Strength testing standard. Limb-symmetry percentages are measured by hand-held dynamometry — isometric hip abduction in side-lying, or the named muscle group, best of three trials, operative ÷ contralateral × 100 — or by isokinetic testing where available; the same method is used for the phase gate and the clearance test. Where no dynamometer is available, single-leg sit-to-stand or step-down symmetry is documented as the substitute. Manual muscle testing is not sensitive enough to gate loading or return to sport. Phase gates are *intermediate* thresholds (≥ 70%); clearance thresholds are *final* (≥ 90% for the lower limb). Where symmetry cannot be reached, clearance is by Dr. Roth on a stable plateau — no gain over two consecutive measurements at least 6 weeks apart — together with pain-free motion and a completed sport-specific progression.

ANTERIOR HIP PAIN IN LATE REHAB

Onset or worsening of anterior hip / groin pain during Phase 3 or 4 — particularly with active hip flexion, sit-to-stand, or running — is most commonly hip flexor tendinopathy from premature or excessive loading. This is not a reason to delay overall progression but warrants scaling back active hip flexion volume, modifying squat depth, and emphasizing gentle hip flexor stretching and eccentric loading. Persistent or severe symptoms should prompt re-evaluation by Dr. Roth.

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Glossary

CPM — Continuous passive motion; a motorized device delivering controlled passive ROM from 0°. Recommended after microfracture in addition to the stationary bike; the hip arc reaches 0–70° by 2 weeks and never passes 90°, with no adduction or internal rotation at end range.

ER — External rotation.

FAI — Femoroacetabular impingement; abnormal contact between the femoral head-neck junction (cam) and/or acetabular rim (pincer) during hip motion.

FFWB — Foot-flat weight-bearing; the foot rests flat on the floor bearing minimal load (~20 lbs).

FWB — Full weight-bearing.

ITB — Iliotibial band; the graft source used to reconstruct the labrum in this procedure.

IR — Internal rotation.

LSI — Limb Symmetry Index; the operative limb's strength or performance as a percentage of the contralateral limb (operative ÷ contralateral × 100).

mHHS — modified Harris Hip Score; a validated patient-reported outcome score for hip function.

POD — Postoperative day.

ROM — Range of motion.

RTS — Return to sport.

SLR — Straight leg raise; active hip flexion with the knee extended.



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Dr. Roth completed his orthopaedic surgery residency at Harvard Medical School and his sports medicine fellowship at the Kerlan-Jobe Orthopaedic Clinic in Los Angeles. In practice since 2013, he specializes in advanced arthroscopic techniques and sports medicine procedures, and sees patients at Palo Alto Medical Foundation's Palo Alto and Pleasanton offices. He welcomes calls from physical therapists about his patients or this protocol.

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